U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: KENK=1

U S APPLICATION NO (If known,see 37 CFR 1 5): 10/088474

INTERNATIONAL APPLICATION NO	INTERNATIONAL FILING DATE	PRIORITY CLAIMED
PCT/CH00/00489	12 September 2000	20 September 1999

TITLE OF INVENTION: PORTION BAG CONTAINING PRE-DEEP-FRIED-FRIES

APPLICANT(S) FOR DO/EO/US: **Ernst KENK et al.**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information.

1. [X] This is a **FIRST** submission of items concerning a filing under 35 U S.C. 371
2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371
3. [X] This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. [X] The US has been elected in a Demand by the expiration of 19 months from the priority date (PCT Article 31).
5. [X] A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a [ ] is attached hereto (required only if not transmitted by the International Bureau).
   b. [X] has been communicated by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US).
6. [X] An English language translation of the International Application as filed (35 U.S C. 371(c)(2)).
7. [X] Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a [ ] are transmitted herewith (required only if not transmitted by the International Bureau).
   b. [ ] have been communicated by the International Bureau.
   c. [ ] have not been made, however, the time limit for making such amendments has NOT expired
   d [X] have not been made and will not be made.
8. [ ] An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. [ ] An oath or declaration of the inventor(s) (35 U S C. 371(c)(4)).
10. [ ] An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. [X] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. [ ] An Assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. [ ] A FIRST preliminary amendment.
    [ ] A SECOND or SUBSEQUENT preliminary amendment
14. [ ] A substitute specification
15. [ ] A change of power of attorney and/or address letter.
16. [X] Other items or information:
    [X] Courtesy copy of the first page of the International Publication (WO 01/21014).
    [X] Courtesy Copy of the International Search Report.
    [X] Application Data Sheet
    [X] The application is (or will be) assigned to: FRITSON AG, whose address is Seestrasse 1, CH-6330 Cham, Switzerland.

JC13 Rec'd PCT/PTO 20 MAR 2002

U.S. APPLICATION NO (If known, see 37 CFR 1 5)	International Application No	Attorney's Docket No
10/088474	PCT/CH00/00489	KENK=1

17. [xx] The following fees are submitted

BASIC NATIONAL FEE (37 CFR 1.492 (a)(1) –(5):

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO. **$1040.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO..... ...**$890.00**

International preliminary examination fee (37 CFR 1 482) not paid to USPTO but international search fee (37 CFR 1 445(a)(2)) paid to USPTO. **$740.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)..... .....**$710.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)..... ... .**$100.00**

	CALCULATIONS PTO USE ONLY
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 890.00
Surcharge of **$130.00** for furnishing the oath or declaration later than [ ] 20 [X] 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$ 130.00

Claims as Originally Presented	Number Filed	Number Extra	Rate	
Total Claims	17 - 20		X $18.00	$
Independent Claims	1 - 3		X $84.00	$
Multiple Dependent Claims (if applicable)			+$280 00	$ 280.00
TOTAL OF ABOVE CALCULATIONS =				$1,300.00

Claims After Post Filing Prel. Amend	Number Filed	Number Extra	Rate	
Total Claims	- 20		X $18.00	$
Independent Claims	- 3		X $84.00	$
TOTAL OF ABOVE CALCULATIONS =				$1,300.00

Reduction of ½ for filing by small entity, if applicable. Applicant claims small entity status. See 37 CFR 1 27.	$
SUBTOTAL =	$1,300.00
Processing fee of **$130.00** for furnishing the English translation later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(f)).	$
TOTAL NATIONAL FEE =	$1,300.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +	$
TOTAL FEES ENCLOSED =	$1,300.00
Amount to be: refunded	$
charged	$

a. [ ] A check in the amount of $_____ to cover the above fees is enclosed.

b. [X] Credit Card Payment Form (PTO-2038), authorizing payment in the amount of $ 1,300.00, is attached.

c. [ ] Please charge my Deposit Account No. **02-4035** in the amount of $_____ to cover the above fees. A duplicate copy of this sheet is enclosed.

d. [XX] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No **02-4035** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO.

BROWDY AND NEIMARK, P.L.L.C.
624 NINTH STREET, N.W., SUITE 300
WASHINGTON, D.C. 20001
TEL: (202) 628-5197
FAX: (202) 737-3528

Date of this submission: **March 20, 2002**

SIGNATURE

Roger L. Browdy

NAME

25,618

REGISTRATION NUMBER

INVENTOR INFORMATION

Inventor One Given Name:: Ernst
Family Name:: KENK
Postal Address Line One:: Rue Boulle 16
City:: Paris
Country:: France
Postal or Zip Code:: 75011
Citizenship Country:: France
Inventor Two Given Name:: Andreas
Family Name:: SCHWEITZER
Postal Address Line One:: Seestrasse 1
City:: Cham
Country:: Switzerland
Postal or Zip Code:: 6330
Citizenship Country:: Switzerland
Inventor Three Given Name:: Bruno
Family Name:: St. MARTIN
Postal Address Line One:: 6, Impasse de Kerrat
City:: Arrandon
Country:: France
Postal or Zip Code:: 56610
Citizenship Country:: France

CORRESPONDENCE INFORMATION

Correspondence Customer Number:: 001444
Fax One:: 202-737-3528
Electronic Mail One:: Mail@BrowdyNeimark.com

APPLICATION INFORMATION

Title Line One:: PORTION-SIZE BAG CONTAINING PREFRIED POT
Title Line Two:: ATO STICKS
Formal Drawings?:: No
Docket Number:: KENK=1
Secrecy Order in Parent Appl.?:: No

REPRESENTATIVE INFORMATION

Representative Customer Number:: 1444

CONTINUITY INFORMATION

This application is a:: 371 OF
> Application One:: PCT/CH00/00489
Filing Date:: 09-12-2000

PRIOR FOREIGN APPLICATIONS

Foreign Application One:: 1727/99
Filing Date:: 09-20-1999
Country:: Switzerland
Priority Claimed:: Yes

Source:: PrintEFS Version 1.0.1

DESCRIPTION

TITLE

Portion-size bag containing prefried potato sticks

TECHNICAL FIELD

The present invention relates to a process for preparing a portion-size bag and a portion-size bag containing a portion, packaged therein, of prefried potato sticks, from which, by later rebaking without repeated deep-frying, ready-to-eat French-fried potatoes can be obtained.

PRIOR ART

French-fried potatoes are one of the most important accompaniments in catering, but also, to an increasing extent, also in domestic cooking. Since their production, if they are made from raw potatoes, is time- and material-consuming and is no longer reconcilable with the current conceptions of up to date and rapid cuisine, French-fried potatoes are increasingly being produced on an industrial scale in a preprepared form and supplied in this manner to catering enterprises and households. Preparation of the potato sticks here can consist solely of peeling and subsequently slicing the potatoes into sticks, but it can also comprise a prefrying step. French-fried potatoes which are prefried in such a manner are then either frozen, possibly even in a shock-freezing process, packaged and stored in a bag, or else packaged in the unfrozen state, generally under a protecting gas atmosphere, and kept at a typical refrigerator temperature of approximately 4°C, or, in the case of certain products, at least at refrigerator temperature. Whereas prefried potato sticks have a very long shelf life at freezer temperatures, those which are kept at refrigerator temperature are usually stored only for a

time of at most three to a maximum of four weeks. Such French-fried potatoes can be designed to be briefly deep-fried again on the part of the final consumer, or they can be designed in such a manner that they only need to be heated in an oven and rebaked on the part of the final consumer. Whereas French fries designed for post-frying generally have a water content of more than 75%, those for rebaking in an oven usually have a water content of 65% and an oil content of 7-8%. For heating them, the latter are heated in an oven for 8 to 30 minutes and are to a certain extent post-fried in the oil already adhering to the French fries. In the course of this a certain proportion of the moisture situated in the French fries also evaporates.

DESCRIPTION OF THE INVENTION

It is an object of the present invention to specify a process for producing a portion-size bag and a portion-size bag containing potato sticks of the type mentioned at the outset, which permits uncomplicated preparation of ready-to-serve French-fried potatoes with simple transportability and storage. This object is achieved by making the bags in such a manner that the potato sticks have a fat content of 5-18% by weight and a water content of 30-60% by weight. The core of the invention is thus to increase shelf life and to reduce the heating time by means of a low water content and a high oil content. Potato sticks which are already to a certain extent completely deep-fried in this way can, firstly, be stored for a relatively long period at temperatures above freezing temperature, and secondly, the effort for preparing them in the home or in the restaurant is minimal, since they no longer need to be heated in the oven for at least 8 to 30 minutes. This is because the low water content and the high fat content in the outer region permit a short rapid heating in which the desired crispiness is rapidly

obtained. Thus a deep-fryer and the associated complex storage of fresh oil can be avoided, and the odor emissions of a deep-fryer do not occur. The deep-fried potato sticks are heated from the bags in a conventional oven or an oven especially provided therefor for only a few seconds to two minutes, and served directly.

A preferred embodiment of the invention comprises the bag having, after its production, a shelf life which permits the bag to be stored for a period of at least 40-60 days at a typical refrigerator temperature in the range of 2-7°C, in particular preferably at 4°C, or for a period of at least 4-20 days, in particular preferably 15-20 days, at room temperature, in particular preferably at 15-25°C, without in this case having to accept significant quality losses of the French-fried potatoes obtained after rebaking. This ensures that the portion-size bag containing potato sticks does not need to be transported in freezer vehicles and stored in freezer chests, in a complex manner, but can be transported and stored under simple refrigerator conditions or even at room temperature. It is thus also possible to transport the bags, for example, at room temperature and to store them at refrigerator temperature at the final consumer's premises, without having to accept spoilage of the French fries. This is accompanied firstly by the great advantage that transport and if appropriate also storage become cheaper owing to the higher temperature, and that, in addition, the potato sticks, when they are introduced into the oven from the storage, do not need to be heated from freezer temperature, that is to say -20 to -10°C, to the serving temperature.

Since a typical refrigerator temperature is 2-7°C, up to 30°C of heating temperature difference can be saved. Together with the phase transition enthalpy of water

from the solid state to the liquid state, this gives energy savings of up to 50%. However, this not only leads to savings in electricity, but can especially also be used so that the French-fried potatoes can be brought to serving temperature in a substantially shorter time, that is to say in suitable ovens in a few minutes, or in special ovens, in some circumstances, even within less than 1 minute. If the rebaking takes place, for example, under the action of hot air and/or heat radiation, in particular preferably for a period of 30 to 120 seconds at a temperature of 230 to 290°C, in particular preferably from 250 to 280°C, after a certain time falling to 180°C, very efficient preparation times can be achieved. The decrease leads to the fact that the French fries are first dried at the high temperature and, on reaching a certain dryness, do not burn, but are made mildly crisp at the lower temperature.

A further preferred embodiment of the invention comprises the fact that the portion-size bags are gastight and preferably also substantially light-opaque, and the shelf life is at least partially due to a preserving gas atmosphere present in the portion-size bag. In order to obtain the shelf life at temperatures above freezing point, it is advantageous to counteract spoilage of the potato sticks using such a bacterio static gas filling. It is possible to proceed here in such a manner that firstly no oxygen is any longer available in the portion-size bag, which now makes only anaerobic degradation possible, or, alternatively, or in addition, bacterio static gases can be used. Preferably, the preserving gas atmosphere is made low in oxygen and to contain at least one of the gases nitrogen (N_2) or carbon dioxide (CO_2), but in particular, preferably, is composed of a mixture of nitrogen (N_2) and carbon dioxide (CO_2). In addition, the sole use of the two gases in a ratio of 30% nitrogen

(N_2) to 70% carbon dioxide (CO_2) is advantageous. Thus, the atmosphere is oxygen-free and the carbon dioxide, at this concentration, has a bacterio static action but does not yet alter taste, which is usually the case at higher CO_2 concentrations.

Another preferred embodiment of the invention is that the potato sticks are treated with a preservative during the production process. The portion-size bags are preferably produced in such a manner that raw potato sticks are sliced, which are first blanched in water, in particular preferably then dried on the surface and then deep-fried, the blanching being carried out preferably at a temperature of the blanching water in the range 65-95°C, in particular preferably at a water temperature of 85°C, for a period of 5-10 minutes, in particularly preferably for 7 minutes, and the deep-frying preferably being carried out at an oil temperature of 150-180°C, in particular preferably 170°C, for a time period of 1 to 9 minutes in a preferably vegetable oil, in particular preferably a palm oil or peanut oil. The treatment with preservative can then be performed by adding a preservative to the blanching water. If the blanching is carried out in a plurality of steps, it can also be sufficient to add a preservative in one of the blanching steps, in particular preferably in the last of the blanching steps. The preservative added can be, for example, sodium sulphite (Na_2SO_3), if appropriate also in the form of sodium hydrogen sulphite or sodium metahydrogen sulphite, preferably in the case of a single-step blanching in such a manner as to achieve a sulphite concentration of 0.05% to 0.3%, in particular, preferably a concentration of 0.1 to 0.2%, or the preservative added can be potassium sorbate, preferably in such a manner as to achieve a potassium sorbate concentration of 0.05% to 0.5%, in particularly preferably a concentration of 0.15%. The maximum values

in this case are determined, inter alia, by country-specific food legislation. In this manner, the preservative is effectively added the sticks during blanching, without a separate step being necessary for preservation.

In a further embodiment, the potato sticks, after blanching and if appropriate after predrying, are coated with a preservative-containing coating.

The coating can be applied, for example, by means of an immersion bath and a starch solution or starch breakdown product solution containing preservatives present therein.

Another preferred embodiment comprises dusting the potato sticks after deep-frying or, if appropriate, event only after the subsequent freezing, with a preservative-containing powder, the powder preferably consisting of starch, maltodextrin, or another starch breakdown product or derivative. In particular preferably, maltodextrin is used, with an amount of powder used of preferably 2½% based on the mass of the potato sticks. The preservative used in this form of preparation can be, for example, sodium sulphite (Na_2SO_3), in particular to achieve a sodium sulphite concentration of 0.5%-1.5%, in particular 1.2%, based on the amount of maltodextrin, potassium sorbate, preferably to achieve a potassium sorbate concentration of 3%-5%, in particular 3.75%, based on the amount of maltodextrin, another preservative, or a combination of said substances. In particular, in combination with the abovementioned embodiments, in this manner, the shelf life of the portion-size bags at refrigerator temperature or room temperature can be further increased. In addition, after rebaking, a pleasant crispiness with

simultaneously better tasting inner moisture is established.

Further preferred embodiments result from the dependent claims.

WAYS FOR CARRYING OUT THE INVENTION

High-quality ready-to-serve French-fried potatoes are distinguished by a pleasant outer crispiness with simultaneous well-balanced moisture in the inner of the sticks. This means that the oil content or fat content decreases in an optimum manner from the outside to the inside, and, secondly, the moisture decreases from the inside to the outside. Without this oil and moisture distribution, French-fried potatoes are limp or else too hard and are unpleasant to bite. If French-fried potatoes are packaged in a pre-fried form, in other words, under the term "freshness retention", not only is there the problem of spoilage, but also the problem of maintaining the oil and moisture distribution in the individual potato stick during storage and also after the rebaking. Both problems are usually solved at the same time by packaging the potato sticks and keeping them frozen or at least at refrigerator temperature as described above after deep-frying, bacterial growth being prevented. In addition, the French-fried potatoes are either post-fried or heated and rebaked in an oven for a relatively long time, that it is to say at least half an hour.

If the portion-size bags are now to be kept for some time at refrigerator temperature or even room temperature, other means must also be provided which are able to prevent the unwanted effects occurring during storage at such temperatures. The following unwanted processes play an important role during storage: 1) bacterial and fungal growth, 2) changes in

taste, for example owing to the effects of autooxidation, 3) changes in texture owing to equilibration of the concentration gradients of oil and moisture along the stick cross section (migration). All of these processes are preferred during storage above freezing point and must be taken into account during production. Although point 3 does not lead to inedible French-fried potatoes, it leads to limp and soft French-fried potatoes having an unpleasant texture.

To enable the production of a portion-size bag containing pre-fried potato sticks which can be stored at room temperature avoiding the abovementioned mechanisms, the following production process is proposed:

In a first step, the raw sliced potato sticks (for example from potatoes of the cultivars Ebba, Bintje or Agria) are blanched in a water bath, that is to say are par-cooked at a water temperature below boiling point for some minutes. The potato sticks in this case can be sliced in a special manner, that is to say, for example, in a crinkle cut, in order to achieve a larger surface to volume ratio. The crinkle cut permits a greater oil absorption during the later deep-frying and at the same time faster drying of the edges in the final heating with hot air, which has a beneficial effect on crispiness. In addition, such French fries usually heat more rapidly. Ideally, the blanching takes place at 65-95°C, in particular preferably at a water temperature of 85°C, and for a time of 5-10 minutes, in particular preferably for 7 minutes. In order to preserve the potato sticks for storage, preservatives are added to the blanching water. Various substances can be used as preservatives. Those which have proved to be suitable are sodium sulphite (Na_2SO_3) or potassium sorbate, or a combination of the two. Sodium sulphite is added in such a manner that a

sulphite concentration of 0.05% to 0.3%, in particular preferably a concentration of 0.2%, is established, and potassium sorbate in such a manner that a potassium sorbate concentration of 0.05% to 0.5%, in particular preferably a concentration of 0.15%, is achieved in the blanching water. The above concentrations apply when the blanching is performed in one step, but it is also conceivable to blanch in several steps and, since the microbial contamination starts from the outside, in particular to operate the last blanching step with preservative. In the case of a last blanching bath, being the only one to contain preservative, the preservative concentration is preferably selected to be somewhat higher.

After blanching, the potato sticks are first predried, then deep-fried. Before deep-frying, the sticks, if appropriate, can be dipped in a bath with an aqueous starch solution (or starch derivatives or starch breakdown products such as maltodextrin) provided with preservatives, or a coating can be applied in another manner, which coating may contain preservative. Application of a preservative-containing coating permits a very simple and easily metered addition with preservative, which can make up up to 10-18% of the French fry. The amount of coating can be set fairly simply via the viscosity of the solution. The viscosity of the solution may be set via the starch concentration, and with increasing viscosity more coating will remain on the stick in an immersion bath. Under certain circumstances, this method can prove to be preferred, because it is found that the efficacy of the treatment of the sticks with preservative during blanching can in some circumstances depend to a not insignificant extent of the cell structure of the potato sticks, which may lead to undesirably different treatment efficiencies.

Since the deep-frying represents the only deep-frying of the sticks, to impart good taste this should also be performed in a high-quality grade deep-frying oil. Deep-frying is performed at an oil temperature of 150-180°C, preferably 170°C, for a time period of 1 to 9 minutes in as far as possible a vegetable oil, for example a palm oil or peanut oil. The deep-frying should proceed for a relatively long time, in order that the French-fried potatoes produced in this manner have a water content in the range 30-60%, in particular preferably approximately approximately 45% to 50%, an oil content of approximately 12-15% and a fat-free dry matter content of approximately 35-40%. If appropriate, deep-frying can also proceed in several stages, in particular double deep-frying can be advantageous.

Since palm oil has a melting point above room temperature ($T_{s\rightarrow l}$approximately 45°C) and this oil is thus in the solid state at the storage temperatures, its use can have advantages, compared with peanut oil, in particular with respect to water transport (migration) and shelf life. This is because in order to prevent the French fries from becoming limp, the oil should act as a water barrier at the surface. Also, the low water content in the process described here, the coating, the rapid heating of the French fry in the oven and the crinkle cut of the sticks are effective means for preventing the French-fried potatoes from becoming limp. After deep-frying the sticks are sterile and the actual microbial contamination takes place later and as a result essentially from the outside during further processing, that is to say on conveyor belts and in packaging machinery etc. Further processing should therefore take place in as clean a manner as possible.

After deep-frying, the French-fried potatoes are best frozen in large amounts (as bulk) and prepackaged

temporarily and then, usually in the frozen state, packaged in small bags. The typical high output of an industrial deep-fryer generally permits no direct sufficiently rapid packaging into the small portion-size bags which contain approximately 115 g to 250 g.

After deep-frying and chilling, or after freezing, before portioning, the potato sticks are preferably further dusted with a powder, for example starch, starch derivative, maltodextrin or another starch breakdown product. The powder should be such that after possible absorption of moisture from the potato stick, it does not contribute to the sticks sticking together. Those which have proved suitable are starch derivatives or starch breakdown products, for example maltodextrins. These should not have excessively long chains (sticking together) and should also not be too short (sweet taste) and should make possible attractive browning after rebaking (for example preferably maltodextrins having a dextrose equivalent of approximately 17-19). The amount of powder used is preferably 2½%, based on the mass of the potato sticks. The dusting can be used and optimized firstly for increasing the final crispiness, and secondly it permits the application of preservatives to the sticks, by adding preservative to the powder. Thus the preservative added to the powder can be sodium sulphite (Na_2SO_3), potassium sorbate, sorbic acid, or other preservatives or combinations thereof. Sodium sulphite in this case advantageously to achieve a sulphite concentration of 0.5%-1.5%, in particular 1.2%, based on the amount of powder; potassium sorbate preferably to achieve a potassium sorbate concentration of 3%-5%, in particular 3.75%, based on the amount of maltodextrin.

After deep-frying, the pre-fried potato sticks are, as indicated above, frozen and packaged in the portion-

size bags. The French fries are best stored as long as possible in the frozen state and then not packed and thawed until required.

The portion-size bags consist optimally of a light-opaque and gastight material and may be sealed gastightly. The gastightness is particularly important, since otherwise the protecting atmosphere slowly degrades and the shelf life due to the protecting atmosphere decreases. A suitable material is, for example, a laminate of a plastic layer and a thin aluminum layer. To preserve the bag contents, the bag is filled under essentially sterile, or at least aseptic as far as possible, conditions, and in addition the stick-filled portion-size bag is flushed with a gas displaying a preservative action and then sealed. The initial microbial count during packaging is critical for the shelf life and should be as low as possible, in particular preferably less than 100 microbes/g. Suitable preserving gas atmospheres are, for example, low-oxygen gas mixtures. Thus the use of pure nitrogen gas does not permit growth of aerobic microbes. Secondly, pure carbon dioxide is bacterio static, both for aerobic and for anaerobic microbes, but unfortunately at high concentrations has properties which alter taste. A good compromise which allows good preservation without changes in taste is achieved by using just these two gases in a ratio of 30% nitrogen (N_2) to 70% carbon dioxide (CO_2).

The abovementioned means for preservation, that is to say the preservatives in the blanching water, in the coating and/or in the dusting and the use of a protecting gas atmosphere in a gastight and light-opaque bag are preferably used individually or in combination to achieve a shelf life as long as possible.

The French fries are only further heated in an oven on the part of the final consumer. The French-fried potatoes are to be crispy and golden-brown and warm to the interior, without drying in the interior. The extent and type of heating which proceeds here has an effect on the resulting crispiness and should therefore be performed in a controlled manner. The size, in particular the cross section of the potato sticks, the intensity of the preceding deep-frying and the type of heating play a critical role here. Heating can be performed by means of hot air and/or heat radiation and/or action of microwaves. Heating under a hot air stream at an air speed of 1-10 m/min and a temperature of initially 230-290°C, in particular preferably at 250°C, then decreasing to approximately 180°C, all during a period of 30-120 seconds, if appropriate supported by heating lamps, leads to the establishment of a moisture distribution which is ideal for the use desired here within the potato stick and an optimum crispiness. In particular decreasing the temperature in the second phase of baking leads to smooth rebaking and targeted crispiness. This is achieved with typical potato sticks having a cross sectional area of 7 x 7 mm, if appropriate using crinkled fries having a full crinkle distance of 1.5 to 2 mm.

PATENT CLAIMS

1. A portion-size bag having a portion packaged therein of prefried potato sticks from which, by later rebaking without repeated deep-frying, ready-to-eat French-fried potatoes can be obtained, in which the potato sticks have a fat content of 5-18% by weight and a water content of 30-60% by weight.

2. The portion-size bag as claimed in claim 1, wherein the bag, after its production, has a shelf life which permits the bag to be stored for a period of at least 40-60 days at a typical refrigerator temperature in the range of 2-7°C, in particular preferably at 4°C, or for a period of at least 4-20 days, in particular preferably 15-20 days, at room temperature, in particular preferably at 15-25°C, without in this case having to accept any significant quality losses of the French-fried potatoes obtained after rebaking.

3. The portion-size bag as claimed in one of claims 1 and 2, wherein the portion-size bags are gastight and preferably also light-opaque, and the shelf life is at least partially due to a preserving gas atmosphere present in the portion-size bag.

4. The portion-size bag as claimed in claim 3, wherein the preserving gas atmosphere comprises at least one of the gases nitrogen (N_2) or carbon dioxide (CO_2), but preferably is compared of a mixture of nitrogen (N_2) and carbon dioxide (CO_2), in particular preferably in a ratio of 30% nitrogen (N_2) to 70% carbon dioxide (CO_2).

5. The portion-size bag as claimed in one of the preceding claims, wherein the potato sticks are treated with a preservative during the production process.

6. The portion-size bag as claimed in one of the preceding claims, wherein the prefried potato sticks are produced from raw potato sticks which are first blanched in water, in particular preferably then dried on the surface, and then deep-fried, the blanching being carried out if appropriate in a plurality of steps and preferably at a temperature of the blanching water in the range 65-95°C, in particular preferably at a water temperature of 85°C, for a period of 5-10 minutes, in particular preferably for 7 minutes, and the deep-frying preferably being carried out in one or more steps at an oil temperature of 150-180°C, in particular preferably 170°C, for a time period of 1 to 9 minutes in a preferably vegetable oil, in particular preferably a palm oil or peanut oil.

7. The portion-size bag as claimed in claim 6, wherein a preservative is added to the blanching water in at least one of the blanching processes.

8. The portion-size bag as claimed in claim 7, wherein the preservative added is sodium sulphite (Na_2SO_3), preferably in such a manner as to achieve a sodium sulphite concentration of 0.05% to 0.3%, in particular preferably a concentration of 0.2%.

9. The portion-size bag as claimed in one of claims 7 and 8, wherein the preservative added is potassium sorbate, preferably in such a manner as to achieve a potassium sorbate concentration of 0.05% to 0.5%, in particular preferably a concentration of 0.15%.

10. The portion-size bag as claimed in one of claims 6 to 9, wherein the potato sticks, after deep-frying, or if appropriate, even only after the subsequent freezing, are dusted with a preservative-containing powder, the powder preferably consisting of starch, a

starch derivative, maltodextrin or another starch breakdown product, and, in particular preferably, the amount of the powder used is preferably 2½, based on the mass of the potato sticks.

11. The portion-size bag as claimed in claim 10, wherein the preservative added to the powder is sodium sulphite (Na_2SO_3), in particular to achieve a sodium sulphite concentration of 0.5%-1.5%, in particular 1.2%, based on the amount of powder, potassium sorbate, preferably to achieve a potassium sorbate concentration of 3%-5%, in particular 3.75%, based on the amount of powder, or another preservative, or comprises a combination of said substances.

12. The portion-size bag as claimed in one of the preceding claims, wherein the rebaking is performed under the influence of hot air, and using an air stream of 1-10 m/sec, in particular preferably 4 m/sec, and/or heat radiation, in particular preferably for a period of 30 to 120 seconds at a temperature of 230 to 290°C, if appropriate decreasing towards the end of the baking time to 180°C.

13. The portion-size bag as claimed in one of the preceding claims, wherein the material used for the portion-size bag is a laminate which, in addition to a plastic layer, comprises an aluminum layer.

14. The portion-size bag as claimed in one of the preceding claims, wherein the potato sticks have a crinkle cut.

15. A process for producing a portion-size bag containing a portion packaged therein of prefried potato sticks from which, by later rebaking without repeated deep-frying, ready-to-eat French-fried

potatoes can be obtained, which comprises preparing the potato sticks to a fat content of 5-18% by weight and a water contents of 30-50% by weight, as a result of which the bag, after its production, has a shelf life which permits the bag to be stored for a period of at least 40-60 days at a typical refrigerator temperature in the range of 2-7°C, in particular preferably at 4°C, or for a period of at least 4-20 days, in particular preferably 15-20 days, at room temperature, in particular preferably at 15-25°C, without in this case having to accept significant quality losses of the French-fried potatoes obtained after rebaking, in particular preferably also comprising the features of claims 2-14.

ABSTRACT

The invention relates to a portion bag in which a portion of pre-deep-fried fries is packed and from which ready-to-heat fries can be obtained by means of post-baking without re-frying. The aim of the invention is to considerably reduce costs and preparation time. To this end, the fries have a fat content of 5-8wt. % and a water content of 30-50 wt.%. The portion-bag preferably has a durability after the production that allows the bag to be stored at a typical ambient refrigerator temperature of 2-7^{0}C, for a period of at least 15-20 days without significantly compromising the quality of the fries obtained after baking.

Page 1 of 2 Pages [X] Original [ ] Substitute [ ] Supplemental Atty. Docket: KENK=1

Combined Declaration for Patent Application and Power of Attorney

As a below-named inventor, I hereby declare that

My residence, post office address and citizenship are as stated below next to my name, and that I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

PORTION BAG CONTAINING PRE-DEEP-FRIED-FRIES

the specification of which (check one)

[ ] is attached hereto;

[ ] was filed in the United States under 35 U.S.C. §111 on , as U.S. Appln. No. _____*; or

[X] was filed in the U.S. under 35 U S.C. §371 by entry into the U.S. national stage of an international (PCT) application, PCT/CH00/00489; filed September 12, 2000, entry requested on March 20, 2002*; national stage application received U S Appln. No. _____*; §371/§102(e) date _____* (* if known)

and was amended on (if applicable)

(include dates of amendments under PCT Art 19 and 34 if PCT)

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above; and I acknowledge the duty to disclose to the Patent and Trademark Office (PTO) all information known by me to be material to patentability as defined in 37 C.F.R. §1.56

I hereby claim foreign priority benefits under 35 U.S.C. §§ 119 (a)-(d) and 365 (b) of any prior foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or under §365(a) of any PCT application which designated at least one country other than the U.S., listed below

Application No	Country	Filing Date (MM/DD/YYYY)
1727/99	Switzerland	September 20, 1999

If I claimed foreign priority above, I hereby identify below any foreign application for patent (including an international (PCT) application designating a country other than the United States) or for an inventor's or plant breeder's certificate, having a filing date before that of the earliest application from which foreign priority is claimed (if left blank, then there are none):

Non-Priority Application No.	Country	Filing Date (MM/DD/YYYY)

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional applications listed below:

Application No.	Filing Date (MM/DD/YYYY)

I hereby claim the benefit under 35 U.S.C. §120 of any prior U.S. non-provisional application(s) or under §365(c) of any prior PCT international application(s) designating the U.S., listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in such U.S. or PCT international application in the manner provided by the first paragraph of 35 U.S.C §112, I acknowledge the duty to disclose to the PTO all information which is material to patentability as defined in 37 C.F.R. §1 56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Filing Date (MM/DD/YYYY)	Status (patented, pending, abandoned)
PCT/CH00/00489	September 12, 2000	PENDING

As a named inventor, I hereby appoint the following registered practitioners to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith

All of the practitioners associated with Customer Number 001444

Direct all correspondence to the address associated with **Customer Number 001444**, which is presently:

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, N.W.
Washington, D.C. 20001-5303
(202) 628-5197

 Atty. Docket: KENK=1

Title: PORTION BAG CONTAINING PRE-DEEP-FRIED-FRIES

U.S. Application filed March 20, 2002, Serial No. _____

PCT Application filed September 12, 2000, Serial No. PCT/CH00/00489

The undersigned hereby authorizes the U.S. Attorneys or Agents appointed herein to accept and follow instructions from ISLER & PEDRAZZINI AG as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. Attorneys or Agents and the undersigned. In the event of a change of the persons from whom instructions may be taken, the U.S Attorneys or Agents appointed herein will be so notified by the undersigned

I hereby further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST INVENTOR	INVENTOR'S SIGNATURE	DATE
Ernst KENK		27.6.02
RESIDENCE		CITIZENSHIP
Paris, France FRX		French
POST OFFICE ADDRESS		
Rue Boulle 16, 75011 Paris, France		
FULL NAME OF SECOND JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
Andreas SCHWEITZER		27.6.02
RESIDENCE		CITIZENSHIP
Cham, Switzerland CHX		Swiss
POST OFFICE ADDRESS		
Seestrasse 1, 6330 Cham, Switzerland		
FULL NAME OF THIRD JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
Bruno ST. MARTIN		27.06.02
RESIDENCE		CITIZENSHIP
Arrandon, France FRX		French
POST OFFICE ADDRESS		
6, Impasse de Kerrat, 56610 Arrandon, France		
FULL NAME OF FOURTH JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP
POST OFFICE ADDRESS		
FULL NAME OF FIFTH JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP
POST OFFICE ADDRESS		
FULL NAME OF SIXTH JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP
POST OFFICE ADDRESS		

ALL INVENTORS MUST REVIEW APPLICATION AND DECLARATION BEFORE SIGNING. ALL ALTERATIONS MUST BE INITIALED AND DATED BY ALL INVENTORS PRIOR TO EXECUTION. NO ALTERATIONS CAN BE MADE AFTER THE DECLARATION IS SIGNED ALL PAGES OF DECLARATION MUST BE SEEN BY ALL INVENTORS